

## Healthy Animals on the Web

ARS has a new on-line source for news and expert resources on the health and well-being of agricultural animals and fish. Updated quarterly, the "Healthy Animals" web site is designed for veterinarians, researchers, producers, animal industry groups, and others. It provides web links to recent ARS research accomplishments about the health of cattle, chickens, turkeys, swine, sheep, goats, horses, and catfish and other aquaculture fish species. It also supplies pertinent research information on deer and other wildlife.

Site visitors can find out how to contact any of the two dozen ARS research groups conducting studies aimed at protecting and improving farm animal health. An index lists 70 animal health topics—from specific diseases to broad subjects like nutrition—along with the ARS locations conducting the research. The site does not provide treatment advice for sick animals or give individualized recommendations. To receive announcements of each new issue, contact Kathryn Barry Stelljes, ARS Information Staff; phone (510) 559-6069, e-mail [stelljes@asrr.arsusda.gov](mailto:stelljes@asrr.arsusda.gov). "Healthy Animals" can be found at <http://www.ars.usda.gov/is/np/ha>. *Caird Rexroad, Jr., Assoc. Deputy Administrator for Animal Production, Product Value, and Safety, Beltsville, Maryland; phone (301) 504-7050, e-mail [cer@ars.usda.gov](mailto:cer@ars.usda.gov).*

## Turkey Syndrome Yielding Its Secrets

Scientists have pinned down the first internal target of a mysterious disease that has been killing turkeys in the Southeast since 1995. ARS and North Carolina State University scientists found that Poult Enteritis Mortality Syndrome strikes first in the thymus, the disease-fighting lymphoid glands. PEMS is apparently a deadly combination of viruses. Specific agents have not yet been identified. But the syndrome leaves a turkey's immune system highly vulner-

able to microbes and parasites. In infected flocks, PEMS mortality ranges from 25 to 96 percent. Some birds recover, but they attain no more than about 40 percent of market weight. From a turkey sick with PEMS, the scientists recently isolated a virus from the thymus, where very few viruses are known to grow. They are attempting to identify this virus and determine its disease role. The research will aid in developing diagnostic tools and treatments to prevent future outbreaks. Already, outbreaks in the Southeast have cost the turkey industry millions of dollars in losses. Other outbreaks have occurred in Texas and Virginia. *Stacey Schultz-Cherry, USDA-ARS Southeast Poultry Research Laboratory, Athens, Georgia; phone (706) 546-3432, e-mail [sschultzcherry@sprynet.com](mailto:sschultzcherry@sprynet.com).*

## License for Aerial Spray System

A new nozzle and aerial spray system for agricultural aircraft has taken off for the marketplace. Spectrum Electrostatic Sprayers of San Antonio, Texas, licensed the ARS technology and is evaluating a commercial prototype. Earlier ARS studies suggest the new system could reduce spray drift from aircraft. This year, larger studies are evaluating this benefit. Compared to conventional systems, the new one can apply a much lower volume of spray per acre. That means a plane can treat more acres during a flight, before having to return to the airport to reload.

ARS tests suggest other benefits, including improved insect control. ARS agricultural engineer James B. Carlton, now retired, invented the nozzle and electrostatically-charged spraying system. Chemicals that may be applied with it include liquid formulations of pesticides, herbicides, insecticides, fungicides, and fertilizers. Airplanes annually spray millions of acres of grain, cotton, and vegetables to control crop pests. Additional millions of acres are sprayed to control mosquitos or other pest outbreaks. *Ivan W. Kirk, USDA-ARS Areawide Pest Man-*

*agement Research, College Station, Texas, phone (409) 260-9584, e-mail [i-kirk@tamu.edu](mailto:i-kirk@tamu.edu).*

## Do Some Crops Need a "V-Chip"?

If Alan Olness has anything to say about it, the N-P-K trio (nitrogen/phosphorus/potassium) of soil tests may someday form a quartet, with a V for vanadium. A little-known but abundant trace element, vanadium captured the ARS soil scientist's interest a decade ago. He found it mysteriously reduces soybean yields. A few years ago he and colleagues confirmed earlier work suggesting some plants take up vanadium instead of the essential phosphorus. Soybeans, corn, tomatoes, impatiens, petunias, and many other plants have no use for vanadium, only a useless appetite for the stuff. So, crop yield and quality may suffer. Olness' current studies aim at seeing if soil type is related to high vanadium content. He also plans a phosphorus advisory so farmers can account for the vanadium effect.

Because standard soil tests don't measure vanadium, they could result in inaccurate phosphorus recommendations. Ten years ago, Olness developed a test that does measure soil vanadium—and its ratio to phosphorus and other key nutrients. The test could be used to recalculate phosphorus recommendations up or down after researchers redetermine the optimum economic amounts of phosphorus. An alternative might be to breed crop varieties with a "V-chip" trait to block or neutralize the pesky element. Scientists have already identified a soybean whose yield seems relatively immune to vanadium. Next question for researchers: Exactly how does this soybean manage this feat? Once they know, they might be able to breed the trait into other crops. *Alan E. Olness, USDA-ARS North Central Soil Conservation Research Laboratory, Morris, Minnesota; phone (320) 589-3411, e-mail [aolness@mail.mrsars.usda.gov](mailto:aolness@mail.mrsars.usda.gov).*